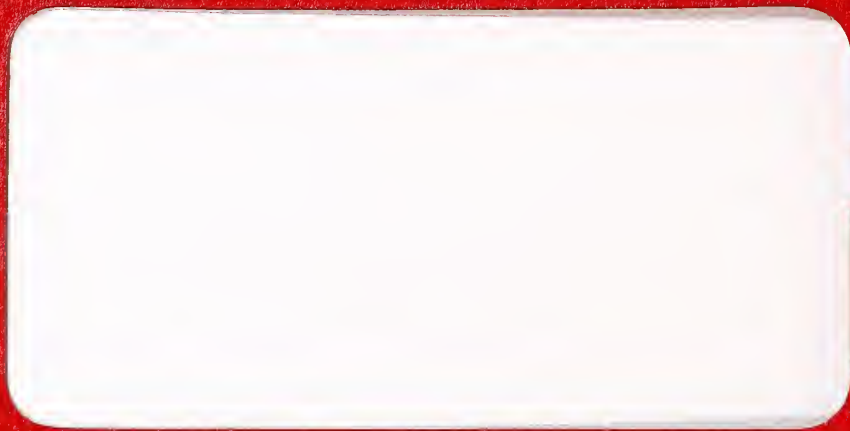


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Company Profiles

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COMPANY PROFILES

Prepared For
MANUFACTURING DATA SYSTEMS, INC.

AUGUST 1980

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COMPANY PROFILES

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I INTRODUCTION

INTRODUCTION

- The purpose of this study was to interview and prepare a company profile of five firms for MDSI.
- Three companies were interviewed for competitive information:
 - Engineering Systems Consultants
 - Nicolet CAD
 - Summagraphics
- Two firms were interviewed for possible acquisition:
 - Amcor Computer
 - Rath & Strong Software
- The information INPUT attempted to obtain included:
 - General background information.
 - Major product offerings and installed base.
 - Financial information.

- Markets, market growth and sales strategies.
 - Pricing data.
 - Employee data.
 - Competitors.
 - Ownership.
 - Key officers.
 - R & D activities.
- Telephone interviews were conducted with each company during July and August of 1980.

AMCOR COMPUTER CORPORATION

COMPANY PROFILE

AMCOR COMPUTER CORPORATION
1900 Plantside Drive
Louisville, KY 40299
(502) 491-9820

Thomas E. Aubrey, President
Private Corporation
Employees: 30
Total Revenues, FYE 5/31/80:
over \$1 million

COMPANY BACKGROUND

- Amcor Computer Corporation was founded in 1970 as a private corporation to provide remote computing services using HP equipment and software.
 - The firm was founded by Thomas E. Aubrey.
 - In the next several years, Amcor's business expanded but was largely confined to general business users in the Louisville area.
- In 1974, Amcor developed its own software for Digital Equipment Corporation computers and converted its users to PDP-11 based systems.
- In 1975, Amcor became an OEM to DEC and offered turnkey systems using the Amcor-developed software.
- Amcor further expanded its product offering in 1977 by offering packaged software.
 - All Amcor software products are designed to operate on DEC computers utilizing BASIC-PLUS TWO language and the RSTS/E operating system.
 - These products are designed for general business use and include three distinct product groups:
 - . Accounting systems.
 - . Business control systems.
 - . Application development tool/DBMS.
- Amcor continues to offer remote computing services and turnkey systems, but the major portion of current business and plans for future growth involves packaged software products.

FINANCIAL INFORMATION

- All attempts to obtain specific financial information from Amcor were declined, but Tom Aubrey, the president, offered the following:
 - Revenues for the year ending May 1980 were over \$1 million.
 - Revenues and earnings for FY 1980 were up 30% and 70% respectively over the previous year.
 - Profits were 10-12% of revenues.
- Sources of revenues were estimated by the company as follows:

- Software products	60%
- Turnkey systems	20
- Remote computing	20
	<hr/>
	100%
- The company would not provide specific information on the ownership of Amcor. An employee of Amcor offered the opinion that Thomas Aubrey, the founder and president, was sole owner of the firm.

KEY OFFICERS

- Key officers of Amcor Computer Corporation are:
 - Thomas E. Aubrey, President
 - Robert G. Bearden, Vice President, Marketing.
 - James W. Sexton, Vice President of Computer Operations.
 - B.S. Aubrey, Secretary

EMPLOYEES

- Amcor currently employs a total of 30 people, 27 of whom are employed at company headquarters.
- Two marketing employees, including the Vice President of Marketing, are located at a sales office in Atlanta (GA) and a single salesman works out of San Jose (CA).
- The 30 employees are divided functionally as follows:

-	Software development	10
-	Technical support	7
-	Sales/marketing	3
-	General and administrative	10
		<hr/>
		30

PRODUCT DESCRIPTION

- The primary business of Amcor is its software products, which are "totally interactive" and designed exclusively for use on the DEC PDP-11/RSTS-E family of computers.
- The software products can be divided into three distinct groups:
 - Accounting systems, consisting of packages for payroll, accounts receivable, accounts payable and general ledger/financial management.
 - Business control systems, consisting of packages for order processing and billing systems, inventory control systems, and sales analysis systems.
 - AMBASE, Amcor's data base and applications development package, consisting of file access modules, screen format generator, report program generator and an inquiry language.
- Pricing for Amcor's software:
 - Accounting systems
 - . Accounts payable \$ 4,950
 - . Accounts receivable 4,950
 - . Payroll 4,950
 - . General ledger/financial management 4,000
 - Business control systems
 - . Inventory control \$ 7,000
 - . Order processing and billing 7,000
 - . Sales analysis 2,500
 - AMBASE
 - . DBMS and application development \$12,500

- As of mid-August of this year, Amcor stated that there are 362 users of its software products.
- Amcor's software products have been recognized by Digital's AIP software rating system and by International Computer Programs, Inc. The company has won:
 - Seven DEC Gold Star awards, which the company states are more than any other DEC software vendor.
 - Three ICP \$1 million awards for accounting systems, business control systems and AMBASE.
- Amcor continues to offer remote computing services to general business users utilizing the software products described above.
 - There are approximately 50 users of these services confined to the Louisville area.
 - The company is not aggressively marketing these services.
- Amcor's activities in turnkey systems consist of systems using its accounting, business control and data base software and DEC hardware.
 - In addition to turnkey sales to end users, Amcor markets systems to computer services companies as the "New Generation Service Bureau Program."
 - The company declined to state the number of systems sold under this program except that it accounted for approximately 20% of revenues.

MARKETING STRATEGIES

- The company is emphasizing sales of its software products over remote computing or turnkey systems.
- Currently the company has customers in 25 states, Canada, England, South Africa and several other European countries.
- Marketing plans to further expand software sales include:
 - Direct sales to users in the U.S., with an expansion of sales offices. Los Angeles was specifically mentioned as a new sales location.
 - Sales outside the U.S. through distributors, which the company is expanding through new agreements covering the U.K. and Benelux countries.

- Plans are underway to broaden the product offerings by developing software for other computer lines.

COMPETITORS

- Although there are a substantial number of software firms offering accounting, business control or data base software packages, only the following were specifically cited by Amcor marketing personnel:
 - TRANSCOMM Data System, Inc.
 - Interactive Management Systems, Inc.
 - Cincom Systems, Inc. (TOTAL)

R&D ACTIVITIES

- Amcor continues to improve its software products, with new releases due shortly of AMBASE and the Business Control Systems packages.
- Development of new products centers on extending the existing software to other computers. The company would not identify other manufacturers or specify whether the expansion might be to another line within the DEC family.
- When asked about the need for financing development activities, the reply was that the company was well financed and had no problems with the availability of funds except for the current high interest rates.

ENGINEERING SYSTEMS CONSULTANTS, INC.

COMPANY PROFILE

ENGINEERING SYSTEMS CONSULTANTS, INC.

1801 Staring Lane
Suite 103
Baton Rouge, LA 70808
(504) 769-2226

Michael Douglas Clotiaux, President
Private Corporation
Total Employees: 7
Total Revenues, FY End
6/30/80: \$260,000

COMPANY BACKGROUND

- Engineering Systems Consultants, Inc. (ESC) was founded as a private corporation in June 1978 to provide consulting in computer graphics.
 - The firm was founded by Michael Douglas Clotiaux, P.E. and Dwight David Vicknair, P.E., who are both 1974 graduates of the masters program of Louisiana State University. The two principals worked together as a partnership previous to the formation of ESC.
 - ESC is wholly owned, in approximately equal shares, by the two founders and one outside investor.
- During the remainder of 1978 and through the end of 1979, ESC secured software development contracts, consulting assignments and data processing contracts.
 - Funds from these contracts were used to develop the DESIGN GRAPHIX software system, which represents the company's principal product.
- DESIGN GRAPHIX is a low-cost (\$49,750) computer-aided design and drafting and interactive graphics system (CADD/IGS), aimed at companies in the \$20 million or less revenue range.
 - ESC believes that this market segment is growing at the rate of 60% per year.
- Once the initial product design was completed, ESC encountered legal problems.
 - ESC formed a business arrangement with Interactive Computer Systems (ICS), also located in Baton Rouge, that allowed both firms to market the CADD product.

- The joint marketing effort proved to be unsatisfactory and ESC terminated the arrangement. ICS countered with an injunction which prevented ESC from marketing the product for several months.

- . This all gained notoriety within the industry and muddied the water considerably, but is ended now. ESC has resumed marketing the product.

- Revenues for the FYE June 30, 1980, were minimal and mostly derived from consulting and engineering contracts. Financial information for Engineering Systems Consultants, Inc. follows:

	<u>FY 1979-1980</u>
Revenues in thousands	\$260
Net income (loss)	\$(78)

- ESC recently added two programmers to bring their total staff to seven.
- In April 1980, ESC prepared a business plan to seek \$1 million in venture capital funding.
 - The plan showed an aggressive pursuit of the low-cost CADD market and projected the following revenues:

	<u>FY 1980-1981</u>	<u>FY 1981-1982</u>	<u>FY 1982-1983</u>
Revenue in millions	\$3	\$6	\$12

- ESC's management believed that this projection was possible to realize.
- The plan was never activated, nor was the funding sought, due to ESC obtaining a major contract with the Houston Instrument Company to develop what the company hopes will be the next generation DESIGN GRAPHIX system.
 - The plan now is to defer seeking outside funds, to strengthen ESC's position by installing more systems, to develop the next product, and hopefully, when they do seek outside funds, to reduce the amount of equity they would have to relinquish to outside investors.

PRODUCTS

- The CADD/IGS system consists of the following:

- A CPU, memory and disk device for the operating software. To this must be added an interface controller and a CRT display used as an interactive computer graphics terminal.
- Individual components are supplied by the following vendors:
 - Computer - DEC LSI/03, LSI/23, PDP 11/34 with Plessey peripherals.
 - Memory - 32 K words, 16 bits/word, supplied by Plessey.
 - Software - ESC DESIGN GRAPHIX.
 - Disc - 10 M byte hard disk (five fixed, five removable) manufactured by Perkin-Elmer, supplied through Plessey.
 - CRT supplied by Tektronix.
 - Interface Components supplied by Plessey.
 - Floppy disk - Shugart, supplied by Plessey.
 - Communications - Rabal-Vadic.
 - Magnetic tape - Cipher and Kennedy.
 - Digitizer - Talos.
 - Plotter - Calcomp or Tektronix.
- ESC does not plan to manufacture equipment but, rather, to function as a systems integrator and software developer.
- DESIGN GRAPHIX, in its present form, is a single-user system with the capability to aid design work and to access data bases.
- The basic system is priced at \$48,750 with an upper range of \$80,000.
 - ESC believes that "you can't beat Autotrol and M&S at their own game, so the price must be under \$100,000."
- One system is presently installed at an architectural/engineering firm, and at least one other system is on order.
- The design objective of the Houston Instruments contract is to develop a multistation CADD system that will become a second-generation ESC product.

SALES AND MARKETING

- ESC has a very limited marketing effort at the present time and it is handled directly by the principals in the firm.
 - They plan to stay "discipline independent" until they get their feet wet in the market, meaning that no specific industries are targeted.
 - Initial marketing efforts, however, primarily have involved architectural, engineering and refining firms.
- The present product is designed for the mechanical market; however, a PCB layout will be available by the end of this year.
- ESC plans to set up independent distributors to sell DESIGN GRAPHIX within Texas, Oklahoma and Arkansas.

COMPETITORS

- ESC believes that no one company has made a significant impact in the single-user computer graphics market; however, several companies are attempting to sell to this market. These are:
 - CalComp.
 - Halguin Co., El Paso (TX).
 - Graphics Construction Industry, Tulsa (OK).
 - Sigma Design West, Aurora (CL).
 - Autotrol.
 - Data Technology.
 - Architectural Systems, Brian (TX).

NICOLET CAD CORPORATION

COMPANY PROFILE

NICOLET CAD CORPORATION

735 Addison Street
Berkeley, CA 94710
(415) 848-6600
827-1020

PHIL MONEGO
Michael Smith, President
Subsidiary of Nicolet
Instrument Corporation
Total Employees: 45
Total Revenues FYE
3/31/80: \$2,000,000

*JIM HARST - NATL SALES
MANAGER*

COMPANY BACKGROUND

- Nicolet CAD Corporation (NCC) was founded as the I-Corporation in 1977 to meet the needs for low-cost computer-aided drafting systems in the \$30,000 price range.
 - The key I-Corporation founder is Victor Kley, a talented and unique individual with the ability to attract and channel the efforts of a strong technical staff. Michael Smith, NCC president, also played a key role in founding the corporation.
 - Most of the engineering talent at NCC comes from the University of California, Berkeley.
- By 1979, I-Corp was providing complete turnkey computer-aided drafting systems and had 200 software products installed.
 - The success of this low-cost turnkey system, coupled with new product development, created cash flow problems. It became evident that added capital was needed to support growth.
- In October 1979, NCC was acquired by Nicolet Instrument Corporation, headquartered in Madison (WI). The parent has annual revenues of approximately \$60 million.
 - The acquisition has worked well for both parties.
 - NCC has a strong technical team, under the continuing expertise of Vic Kley, and a proven turnkey product.
 - Nicolet Instrument has financial resources, a mature management staff to provide guidance and focus, and another subsidiary, Nicolet Zeta, that manufactures graphic plotters (some of which are included in NCC systems). Nicolet Instruments also provided NCC with a new 20,000 square-foot facility.

- Revenues for FYE 1980 were \$2 million, up 82% from FY 1979. NCC expects FY 1981 to be between \$3.2 and \$4 million, up 60-100% from the prior year. NCC is off to a good start this year, July sales reached \$450,000. Financial information for NCC follows:

	<u>FY 1979</u>	<u>FY 1980</u>	<u>FY 1981</u>
Revenues in millions	\$1.1	\$ 2	\$3.6 est
Percent change from previous year	--	82%	80% est
Net income (loss)	--	(about break even)	(profit) est

- The total number of employees is now 45, up 50% from three months ago. The company expects to continue to expand its staff.
- All product development has been internal. The product development group is viewed as a key asset.

PRODUCTS

- Nicolet CAD has developed three hardware systems with a variety of options and four applications software packages.
 - The present Nicolet goal is to provide the user with an electronic drafting board as a turnkey system at a truly low cost.
 - Longer range plans include the development of computer-aided design systems for integrated circuitry.
- The four application software packages are:
 - Printed circuit board design.
 - Schematic design.
 - Hybrid design (symbols and logic)
 - Mechanical (offered only on system 50).
- The printed circuit package provides a set of commands to position pre-defined library shapes.
 - The user can specify line widths and spacing between conductors.
 - Groups of symbols can be combined into a new symbol.

- Tedious redefinition tasks are eliminated by using step and repeat functions.
- It is possible to zoom and scale into any part of the PC board.
- When a design is complete, it is plotted to produce master art work for photoreduction.
- It is possible to use the data base to create the solder mask and silk screen art, plus fabrication and assembly drawings.
- System 50 was the initial product developed by NCC.
 - It is based on the Tektronix 4051 desk-top computer.
 - Prices start at \$29,950.
 - Over 100 System 50s have been sold.
 - System 50s are no longer being marketed, having been superceded by System 52.
- System 52 is a DEC LSI-11-based system that uses the high performance 4052, a 16-bit word machine.
 - Prices range from \$46,885 with an 11" x 17" plotter to \$61,390 with a 32" x 34" plotter.
- System 80 is a color system that was announced at the end of the first quarter 1980.
 - This new system is a high performance, LSI-11-based system that supports a color raster refresh display developed by Nicolet CAD.
 - Basic color systems range from \$85,000-95,000, and "full blown" systems range from \$110,000-115,000.
 - Fifteen to 16 color systems are on order now; this represents a current backlog of over \$1.5 million.

SALES AND MARKETING

- Nicolet CAD is in the enviable position of having a proven product in a market niche where there is little competition.
 - Low-cost turnkey systems will open the door for the \$20 million and under company to use CAD equipment.

- This market should grow at least at the rate of the overall electrical CAD market, which INPUT estimates to be growing at 50% per year.
- Nicolet CAD is well-positioned and has the financial backing to maintain a major position in this market sector.
- Three months ago, Nicolet CAD hired a national sales manager, Jim Hirst, who is engaged in building a direct sales force.
 - The \$2 million in sales last year were generated by two direct sales people and two distributors.
 - The key domestic sales strategy is to build a direct sales force in selected geographic areas.
 - Nicolet CAD will share sales/service facilities with its parent company in the U.S.
 - The Zeta division will also sell CAD systems, as NCC will sell graphic plotters for Zeta.
 - Internationally, Nicolet Instrument has seven subsidiaries that sell and service products from Nicolet CAD.
- Almost the entire effort of Nicolet CAD is aimed at the electrical market, and they plan to keep it that way.
 - The electrical market, starting with PCB design and moving into integrated circuit design, is regarded by NCC as having the largest growth potential and offering the greatest opportunity.
- Continued emphasis on product development for electrical design is basic to NCC strategy.

COMPETITION

- Other companies have or are positioning themselves in the under \$100,000 CAD market and are in direct competition with Nicolet CAD.
 - Summagraphics, of Fairfield (CT), is well known to NCC as a competitor.
 - NCC is also aware of the activities of Engineering Systems Consultants of Baton Rouge (LA) and regard them as a future competitor.
 - NCC also reported that they are involved in competition with certain of the CAD companies that sell larger systems, specifically, Computervision and Gerber.

RATH & STRONG SOFTWARE

COMPANY PROFILE

RATH & STRONG SOFTWARE
20 Worthen Road
Lexington, MA 02173
(617) 861-1700

Arnold O. Putnam, President
Private Corporation
Employees: 35
Revenues: \$1.5 million
to \$2 million (est.)

COMPANY BACKGROUND

- Rath & Strong Software is a wholly owned subsidiary of Rath & Strong, Inc., a management consulting firm headquartered in Lexington, Massachusetts.
 - Rath & Strong, Inc., was founded in 1935 and has offices in Chicago, Dallas and Los Angeles.
 - The parent offers a wide variety of consulting services for the manufacturing and distribution industries, including work measurement, incentives, plant layout, economic studies, operation systems and quality control.
- Rath & Strong (R&S) Software was established as a division of Rath & Strong, Inc., in April 1978 and as a wholly owned subsidiary in April 1980.
- R&S Software headquarters are at the parent company in Lexington (MA); however, the software development and support personnel are located at:
 - Rath & Strong Software
3835 LBJ Freeway
Suite 300
Dallas, TX 75234
(214) 980-0647
- R&S Software products and services are all related to the manufacturing expertise of the parent company and are marketed under the trade name Production & Inventory Optimization Systems (PIOS).

FINANCIAL INFORMATION

- Attempts to obtain detailed financial information from Rath & Strong were declined.
 - The company stated that total revenues for the parent company were about \$4 million in 1979.

- A marketing employee said he expected 1980 R&S Software revenues to be about \$2 million.
- Approximately 40% of R&S Software's revenues are from software sales, with the remaining 60% from professional services relating to software installation, customer education and support, custom modifications, and other related services.
- R&S Software is wholly owned by Rath & Strong, Inc., with shares of the parent held by current or retired employees of the firm. There is no substantial outside ownership.

KEY OFFICERS

- The officers of R&S Software are:
 - Arnold O. Putnam, President.
 - Woodrow Chamberlain, Executive Vice President.
 - Gerald H. Dorman, Vice President Finance.
- The key managers of R&S Software are:
 - O. John Howard, Director of Sales & Installations.
 - William H. Scheick, Director of Sales & Market Support.
 - Linda Smith, Director of Software Development & Promotion (Texas).
 - Robert R. Cronan, Director of Software Development & Promotion (Massachusetts).

EMPLOYEES

- R&S Software currently has 35 employees, with about 30 of these employees located at its Dallas office.
- Functionally the employees are grouped as follows:

-	Management	5
-	Technical support	23
-	Development	5
-	Marketing	2
		<hr style="width: 100px; margin: 0;"/> 35

PRODUCT DESCRIPTION

- Under the Production and Inventory Optimization Systems' (PIOS) designation, R&S Software currently markets four PIOS packages priced as follows:

	<u>One-Time License Fee</u>
- PIOS/MPS Master Production Scheduling	\$20,000
- PIOS/MRP Material Requirements Planning	55,000
- PIOS/SFC Shop Floor Control	25,000
- PIOS/4M-CSD 4M Computerized Standard Data	32,000

- Two PIOS versions are available:
 - A batch version (PIOS/BAT), originally developed in 1969 and enhanced by on-line data entry and inquiry in 1979.
 - An on-line version (PIOS/ONL), fully interactive and operational since 1977.
- PIOS is written in COBOL for operation on the following computers and operating systems.
 - IBM 360/370, 4300, 3031-3.
 - IBM OS, OS/VS, DOS, DOS/VS.
 - Honeywell Series 60-66.
- PIOS is designed to interface with the user's DBMS in native mode and has been interfaced with TOTAL, IMS, IDMS, IDS, CFMS, BOMP and DBMOP.
- Installations of PIOS software include:
 - A total of 20 users of one or more of the four PIOS packages.
 - Approximately seven users of the complete PIOS system, all of whom are using the on-line version.
- PIOS has not received any software awards that the company is aware of.
- The company provided the following names of PIOS users: Jones & Lamson, Bell Hellicopter, Rexnord, TRW and Electronic Associates, Inc.

SALES/MARKETING STRATEGIES

- R&S Software sells PIOS directly to users.
 - The company does not have a licensing arrangement with any other company due to the complexity of installation and associated custom work.
- Its primary market has been discrete manufacturing in commercial, aerospace and defense companies. Recently, it has started to successfully market PIOS to the process manufacturing industries.

COMPETITORS

- Competitors specifically mentioned by the company include:
 - Arista Manufacturing Systems, Inc.
 - Comserv Corporation.
 - IBM (COPICS software).
 - Martin Marietta Data Systems.
 - Software International Corporation.

R&D ACTIVITIES

- R&S Software is in the process of developing additional modules to PIOS that will be released in late 1980 or early 1981:
 - PIOS/Order Entry.
 - PIOS/WIP costing.
 - PIOS/Purchase Order Control.
- In addition to the batch and on-line versions of PIOS, a minicomputer version is under development.
 - Developed for Data General C/S series computers, the new version will provide standalone or distributed processing capability.
 - Development work has been partially completed, but further work on the project has been suspended.

SUMMAGRAPHS CORPORATION

COMPANY PROFILE

SUMMAGRAPHS CORPORATION

35 Brentwood Avenue
Box 781
Fairfield, CT 06430
(203) 384-1344
2

Paul E. Huber, President
Private Corporation
Total Employees: 300
Estimated Total Revenues, FYE
5/31/80: \$20,000,000

THE COMPANY

- Summagraphics was founded as a private corporation in 1972 to manufacture digitizers and data tablets for graphics systems.
 - The key founder is Al Whetstone, the present chairman of the board.
- Since the company was formed, its services have expanded into low-cost, computer-aided drafting systems (CAD).
- Summagraphics Corporation today is operating successfully in two related, but different, markets:
 - As an OEM equipment manufacturer of digitizers/data tablets for graphic systems suppliers.
 - As a turnkey vendor for low-cost, computer-aided drafting systems.
- The CAD systems are priced at less than \$100,000 and are specifically aimed at the largely unpenetrated market of computer-aided drafting systems for companies with revenues of \$20 million or less.
 - CAD software packages are offered for mechanical drafting, schematic diagrams and printed circuit board layout.
- The organization of the company is structured to serve the needs of a two-product company: peripherals and CAD systems. The four basic operating divisions of the company are:
 - Systems development.
 - Engineering.
 - Product manufacturing (peripherals).
 - Product manufacturing (systems).

- The digitizer product line is based both on external product development and a product line acquired from the Computer Graphics Division of the Bendix Corporation.
 - Summagraphics purchased the Bendix digitizer product and line of patents (based on electromagnetic technology) to go with the Summagraphics-developed digitizers (based on magnetostrictive technology).
 - Summagraphics had some problems in digesting the acquisition from Bendix and has added several person-years of additional R&D. Now the basic problems are behind them, and Summagraphics is well positioned in the market with a low-cost product and supporting software.
 - The acquisition was for cash. Rights to the Bendix product and patents were obtained essentially at net asset value.
- Total revenues for FYE 1980 are estimated to be \$20 million, up 67% from the previous year. Financial information for Summagraphics follows:

	FY 1980	FY 1979
Revenues in millions	\$20E	\$12E
Percent change from previous year	67%	--

- The company reports that it is profitable and that net income is growing at a faster percentage rate than revenues.
- INPUT estimates that 70% of Summagraphics' present annual revenue is derived from OEM sales of peripherals and 30% from computer-aided drafting systems.
 - Summagraphics' management expects growth to continue at a rate somewhere between 50% and 100% per year.
- The total number of employees is now around 300, up 67% from the previous year, and the company expects to continue to expand its staff rapidly.

PRODUCTS

- The Summagraphics product line of digitizers starts with the BIT PAD ONE, which is a low-cost data tablet/digitizer peripheral device for computer graphics systems.
 - BIT PAD ONE converts graphic information into digital form in a format compatible with most graphics computer systems.

- Selections can be made by means of a marking ballpoint stylus, a dry non-marking stylus, or a one-, four- or 13-button cursor.
- Resolution of the digitizer is 0.005 inches, which is comparable to more expressive turnkey graphic design systems.
- BIT PAD ONE prices, including needed accessories, start at \$935 for an 11" x 11" tablet and range up to \$1,700 for the 15" x 15" size.
- SUMMAGRID is a full-sized digitizer which is offered in opaque or backlighted models with active areas ranging to 42" x 60".
 - It is designed for high accuracy and high resolution applications.
 - Resolution is 0.001" and accuracy is 0.005."
- The company offers other variants of its two basic digitizers, BIT PAD ONE and SUMMAGRID, including ID, an intelligent digitizer with a built-in mini-computer. ID ranges upward in price to over \$7,000.
- Summagraphics' computer-aided drafting system is DATAGRID II.
 - DATAGRID II is an INTEL microprocessor-based system which is offered for:
 - Mechanical drafting.
 - Schematic diagrams.
 - Printed circuit board layout/artwork/manufacture.
 - DATAGRID II is priced under \$100,000.
 - It is offered as a standalone turnkey system but has the capability to access Computervision and Applicon data bases. A Summagraphics development effort is under way to make it compatible with other CAD systems as well.
- The basic DATAGRID II configuration includes:
 - Tablet 36" x 48" (0.005").
 - Four-button cursor.
 - Processor with 64K bytes RAM.
 - Graphic display 11" diagonal storage tube.
 - Hard disk with ten megabyte storage (five megabyte fixed, five megabyte removable).

- Double bay desk cabinet.
- Interactive drafting software packages.
- Summagraphics' management places the number of DATAGRID II systems sold at 100.
 - The sales follow the broad industry cross-section that graphics systems serve.
 - Systems are either purchased or under third-party lease.
 - Summagraphics believes that the largest growth potential lies in the mechanical market for CAD systems under \$100,000.

SALES AND MARKETING

- Summagraphics is well positioned in the OEM market for low-cost digitizers and in the turnkey market for computer-aided drafting systems. (They believe that their position is one of dominance.)
- The sales effort is a combination of internal sales force, dealers and representatives.
 - Sales efforts are worldwide, with 30% of revenues derived from outside the U.S.
- Its CAD systems tend to fit smaller companies with revenues of \$20 million or less, but they also sell to divisions of larger companies.
- Major OEM clients for digitizers include:
 - Tektronix.
 - Apple.
 - Computervision.
 - Autotrol.
 - Megatek.
 - Ramtek.
 - Others in the computer graphics field.

COMPETITORS

- Major competitors in the low-cost CAD market include:
 - Gerber.
 - CalComp.
 - Nicolet CAD.
 - Data Technology.
 - Engineering Systems Consultants.
- Summagraphics intends to stay ahead of competition by focusing its efforts on computer-aided drafting and providing excellent application capabilities within the established price range.

